DEVELOPING A CDTV TITLE

What does it take to develop a title for CDTV multimedia ?

Because it is based on an established technology for which there is a wealth of development tools, CDTV interactive multimedia is perhaps the easiest multimedia or CD-ROM platform on which to develop. The development system and the tools are not only relatively inexpensive, but also powerful and easy to use. First you need an idea, of course, and an implementation design. Then you choose an authoring system suitable for your design, and get going. The application is first constructed on a hard drive. From this an image is generated in the CDTV ISO-9660 format and a test disc (CD) is made. (Optionally, testing can be done from the hard drive using the CDTV emulator board, although a test disc is recommended for final testing.) The disc, hard drive or a magnetic tape is sent to a replicator for manufacturing when the testing is satisfactory.

Do I have to do this all myself ?

No, there are service centers in the USA and Europe that can create the ISO image and make the test disc. Of course, you can choose any one of many replicators to manufacture your product.

What if I want to use CD-quality audio ?

Then you must supply a DAT tape or CD audio disc containing your sounds or music to the replicator of your test disc. Note that the emulator board allows you to test the audio as well as the data and program execution.

What development system is generally used and how much does it cost ?

An Amiga 2500/30 with a large hard drive is the recommented development platform. The Amiga was designed for multimedia use and as such is an ideal development platform for today's multimedia CD-ROM titles.

The suggested retail price of the A2500/30 is $3799 plus the cost of the hard drive. Reduced pricing for Commodore's developer programs. The emulator is offered separately. Video and audio capture boards are avaible for those applications that require them.

Is any special licensing required ?

There is a nominal licensing fee payable to Commodore on a quartely basis for each bootable CDTV disc sold.
This licensing program was introduced to ensure that CDTV discs are generally uniform in approach and user interface and can be easily identified as such by the consumer. In addition, we wanted to foster a high standard of quality and reliability. The revenue generated by the program will assist in CDTV system improvements and cost reduction and help fund additional development tools and products.

What do I get for my license fee ?

The fee gives you the right to use Trackbuilder software to create your master disc and use the S-Box utility to compress items on your disc. In addition, you are granted the right to use the CDTV logo in association with your title.
Several routines and librairies are also available to incorporate into your title including printer drivers, fonts, a scripting language, and other useful pieces of code including CDXL.

Tell me more about the authoring systems and development tools.

Since the CDTV system is based on Amiga technology and the Amiga is the development platform, it benefits from more than five years of tool development. A multi-page directory of tools is available to the developer. In addition, the many Amiga magazines and newsletters include reviews of the latest of these tools.
Here are examples of the choices :

Authoring Systems : AmigaVision, AMOS, The Director II, Foundation, CanDo
Graphics : Deluxe Paint III, DigiPaint, The Art Department Professional
Rendering : Imagine, Sculpt 4-D, Real 3D, Caligari
Animation : Disney Animation Studio, Deluxe Paint III
Text Retrieval : Xearch, Ultracard
Video Capture : Framegrabber video digitizer, Video Toaster
Compression : Squeeze Box, Time Fold
Graphics Capture : DigiView, Sharp JX300 & 450 scanners with professional Scanlab, Scanmaster, Color Pik, Graphics Tablets
File Transfer : CrossDOS, The Art Department Pro, ImageLink
Audio Capture : Audio Master, Perfect Sound

What if I am working in the MS-DOS or Macintosh environment ?

There are many utilities for the Amiga that allow the easy transfer of images and audio files to the CDTV format. Both systems use the ISO-9660 data format, so the extent of changes depends on the amount of code specific to the Mac or PC environment.

Generally, the driver or reader software needs to be modified. The extent of that work depends on how closely integrated the code is with the operating system or environment for which it was written.

How do I get answers to technical questions about CDTV multimedia ?

Commodore offers a Developer Support Program which CDTV developers should join. Members receive regular mailings and access to electronic bulletin boards. If you join the Commercial Program, tou are entitled to take advantage of hotline telephone support. Members of the program generally receive discounts on purchasing Commodore equipment and CDTV titles and are eligible to attend Developer Conferences.

What will Commodore do to help me get my titles into the market ?

Commodore is a non-exclusive distributor of CDTV titles selling principally to those retailers who also stock the hardware. In the USA a phone and mail-order service is also offered.

Two opportunities are available to make purchasers aware of your title. A catalog of titles is available and is shipped with the CDTV player in English speaking countries. A slide show of title screens with voice over in the local language describing titles is on every Welcome dics. (The Welcome disc is the multimedia "manual" shipped with the CDTV player.) In addition, a selected group of interactive demos of titles are available at point of sale and on the Welocome disc.

How do I join the support program ?

To obtain an application for membership in Commodore's Developer Support Program, contact your local Commodore office for an application. In the USA call (215) 431-9180 or write to :

Commodore Aplications and Technical Support
1200 Wilson Drive
West Chester, PA 19380

CTrac™ Emulation System for CDTV

by ICOM Simulations, Inc.

The CTrac Emulation System for the Commodore CDTV is a product that emulates the CD drive of CDTV for the purpose of providing a developer environment capable of making rapid changes to a CD-based product. Because of the inherent read-only nature of CD, and the specific access times and transfer rates of CD data, a high quality emulation system is necessary to allow rapid and accurate development of CD titles. CTrac is designed to accomplish that task.

The CTrack Emulation System consists of two parts. The first part is a printed circuit card that plugs into an Amiga 2500/30 or 3000 and its associated driver software, which is known as CTrac Emulator. The second part is the software to create CD-ROM disc images, which is known as CTrac Builder.

The CTrac Emulator, along with its driver software running on the above mentioned Amiga 2500/30 emulates the CD-ROM drive of the CDTV so that a program sees no difference between CDTV with an emulation board and a normal CDTV. It does this by completely replicating all aspects of the CD subsystem, including recognizing and handling all commands to the CD, reading data and the proper transfer rates, emulating CD seek time and rotational latency and all other timing characteristics of the CD. It is this level of transparency that makes true emulation, rather than approximate simulation, possible. CTrac is capable of handling CD-ROM data, CD-DA (digital audio) data, CD+G data, and subcode channel data, all coming from a properly built disk image residing on the Amiga 2500/30 or 3000.

The CTrac Emulator driver software is responsible for interpreting the commands sent to the CD-ROM and converting them to disk commands to fetch the required data from the disk image residing on the development system's hard disk. It will then transfer the data to the CTrac Emulator so it could be fed at the proper data rate to the CDTV. It would also be responsible for emulating the seek time that the CD-ROM requires so as to make the total emulation as accurate as possible.

The second part of the CTrac Emulation System is CTrac Builder, which allows a developer to take all of the portions of his product, including program files, data files, and CD-DA data (if any) and combine them into a single image of a CD-ROM disk. This is exactly equivalent to creating a master image from which an actual CD-ROM disk could be manufactured. The difference is that the image is created such a manner that the data is ready to be fed to the CTrac Emulator so it can be sent to the CDTV as if it came from a CD-ROM disk. CTrac Builder allows a developer to group his files in any manner necessary, and is capable of creating multi-track disk images. CTrac Builder does all the calculations need to provide a complete disk image ready for testing, including the ISO-9660 disk format, as well as ECC data, data scramble, subcode date, and CD+G data.

The CTrac Builder is actually multiple programs. The last program is the image builder, which takes in various types of data tracks and outputs a disc image. It is controlled by an Image Description file, which will contain a series of commands describing which data files will be used as source material for the tracks of the image, as well as in what order they need to be included and what, if any, special processing will be needed by a particular track. This Image Description file will be a simple text file, which will be generated by the track builders. The track builders make up the rest of CTrac Builder. They are responsible for creating the individual tracks needed by the disk, and which are used as input for the image builder. The track builders will be controlled by a Disk Description, which provides information about the disc as a whole, as well as the individual tracks that are part of the disc.

Commonly asked questions about the CTrac Emulation System:

Q: Will the Ctrac system allow me a way to transfer my disc image to a CD manufacturer to have test discs and final discs made?

A: Yes. It is intended that CTrac will support methods of data input to CD manufacturers. The first will probably be the Exobyte 8 Track tape recorder, and the second will be a Write-Once CD system. Further details will be announced in the near future.

Q: Do I have to take my data to a premastering facility so that I can format it properly as an ISO 9660 CD?

A: No CTrac Builder functions as a complete premastering facility all by itself. No additional steps are needed.

Q: Now that I can test my CD program with CTrac Emulator, how will I be able to create and test CD Audio (CD-DA) tracks?

A: The CTrac System is fully capable preparing and emulating CD Audio. (CD Audio is also known as CD-DA or Red Book) in fact, you could use CTrac to make Red Book compatible audio discs as well as CD-ROMS.

Q: What size hard disk will I have to have to use the CTrac Emulation System?

A: CTrac does not require specific hardware configurations. The size of the emulation disk, therefore, depends on the size of your project. We usually recommend at least twice as much room as will be filled on the final disc. For example, if you are creating a product that will occupy 280 MBytes of data on the CD, a 650 MByte disk should be sufficient.

Q: How will I tell the CDTV that I am using an emulator. Will I have to run a program on the CDTV to get the emulation started?

A: No, the emulation is completely transparent to the CDTV. It cannot tell that an emulator has been substituted for its CD-ROM drive. Just start the emulation driver on the Amiga 2500/30, insert the disk to be emulating by opening the disk image file in the driver, and reboot the CDTV. It will start up just as if you had inserted a real CD in its CD-ROM drive.

For more information, contact Mike Kawahara or Rick Unland at Commodore Business Machines, Inc., or call ICOM Simulations, Inc. at (708) 520-4440.